

COMPARISON OF IMPACTS OF THE ALTERNATIVES

Impact Topic	Alternative A: Continue Personal Watercraft Use as Currently Managed under a Special Regulation	Alternative B: Promulgate a Special Regulation to Continue Personal Watercraft Use with Additional Management Restrictions	Alternative C: No Action (Personal Watercraft Use Would Be Eliminated)
Water quality	<p>Personal watercraft emissions would have adverse, direct, negligible to minor, long-term effects on Lake Powell waters.</p> <p>Cumulatively, there would be an adverse, direct, negligible to minor, long-term effect on Lake Powell from all motorized watercraft. No violations of water quality standards would be expected.</p> <p>Increases in the proportion of low-emission engines powering personal watercraft and other vessels would reduce emissions from the collective fleet of watercraft using Lake Powell by 50 percent by 2012.</p> <p>No impairment of water quality resources.</p>	<p>Effects on lake water quality would be similar to Alternative A.</p> <p>Direct, long-term, beneficial, minor to moderate effect on water quality would occur from removing personal watercraft use in 9 miles of the Dirty Devil River. Benefits to the other rivers would be negligible.</p> <p>Cumulative effects would be similar to those of Alternative A.</p> <p>No impairment of water quality resources.</p>	<p>A direct, beneficial, long-term, negligible to minor effect on the water quality of Lake Powell from the immediate removal of all high-emissions personal watercraft engines and their replacement mostly with low-emissions engines on other watercraft.</p> <p>Effects on the tributary rivers would be similar to those described for Alternative B.</p> <p>No impairment of water quality resources.</p>
Air quality	<p>Carbon monoxide, hydrocarbons, and volatile organic compounds would continue to be emitted at volumes exceeding 100 tons per year, producing moderate, long-term, direct, adverse impacts on human health and air quality related values.</p> <p>Personal watercraft emissions of particulate matter and nitrogen oxides would continue to cause locally degraded visibility, a direct, long-term,</p>	<p>Effects would be similar to Alternative A.</p> <p>No impairment of air quality resources.</p>	<p>Personal watercraft emissions would be eliminated, which would produce direct, beneficial, short-term, negligible to moderate effects.</p> <p>Replacement of personal watercraft with other motorized vessels that mostly had low-emission engines would produce higher emissions of carbon monoxide and nitrogen oxide, but lower emissions of particulate matter, hydrocarbons, and volatile organic compounds. Cumulative</p>

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Soundscapes	<p>negligible to minor, adverse effect on human health and air quality related values.</p> <p>No change in Class II airshed status, SUM06 ozone measurements, or ability to remain below national ambient air quality standards.</p> <p>Cumulative effect from all motorized vessel would be direct, long-term, adverse, and minor to moderate, based on volumes of emissions. Increased proportions of low-emission marine engines would decrease loadings of most air pollutants by 2012, a direct, long-term, beneficial effect.</p> <p>No impairment of air quality resources.</p>		<p>effect from emissions from all motorized vessels would be direct, long-term, adverse, and minor to moderate.</p> <p>No change in Class II airshed status, SUM06 ozone measurements, or ability to remain below national ambient air quality standards.</p> <p>No impairment of air quality resources.</p>
	<p>No change would occur in the soundscape from conditions that occurred under the <i>Superintendent's Compendium, 2002</i> because the number and locations of personal watercraft using Lake Powell would not change. Sound effects would be direct and both short-term and long-term.</p> <p>In the Recreation and Resource Utilization and Developed Zones, personal watercraft noise would cause mostly negligible to minor, adverse impacts, with moderate impacts at high-</p>	<p>Alternative B would have the same number and mix of watercraft as Alternative A. Therefore, throughout most of the Recreation and Resource Utilization and Developed Zones, noise effects of personal watercraft would be similar to those of Alternative A.</p> <p>Effects also would be similar to Alternative A in most of the Natural and Cultural Zones. In the newly restricted areas in the tributaries, a beneficial effect would occur from reduced noise. The intensity would be negligible to minor because these areas are lightly</p>	<p>Beneficial, direct, negligible to minor, short-term impacts would result from the removal of personal watercraft.</p> <p>Because personal watercraft use would be replaced with use of other motorized vessels, and because most of these vessels have sound levels similar to personal watercraft, most effects would be similar to those of Alternative A. In the tributary areas, effects would be similar to those described for Alternative B.</p> <p>Cumulative effects would be similar to</p>

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Wildlife and wildlife habitats	use times in high-use locations. In the Natural and Cultural Zones, personal watercraft noise would produce minor to moderate adverse impacts within a mile of the shoreline. At greater distances, the impacts would be negligible.	used. Cumulative effects would be similar to those described for Alternative A. No impairment of the natural soundscape.	those described for Alternative A. No impairment of the natural soundscape.
	Cumulatively, noise from all sources would have a minor to moderate adverse effect in the Recreation and Resource Utilization and Developed Zones. In the Natural Zone, most noise effects would be minor with occasional moderate effects.		
	No impairment of the natural soundscape.		
	No change would occur from conditions that occurred under the <i>Superintendent's Compendium, 2002</i> because the number and distribution of personal watercraft using Lake Powell would not change. Personal watercraft would cause adverse, direct, negligible to minor, short-term impacts, some of which would be observable and measurable. However, changes resulting from such conditions would be within the range of natural environmental and biological	The elimination of personal watercraft use along 113 miles of tributary rivers would have a negligible beneficial effect. Otherwise, effects would be similar to those of Alternative A. Cumulative effects would be similar to those of Alternative A. No impairment of wildlife or wildlife habitats.	Negligible, beneficial, direct, short-term effects would occur because of the reduced number of personal watercraft on the lake. These beneficial effects would decrease with time as other motorized watercraft replaced personal watercraft. The change would be indistinguishable from background variations in wildlife populations or habitat conditions. Cumulative effects would be similar to Alternative A. No impairment of wildlife or wildlife

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Threatened and endangered species	<p>variability. Populations of all wildlife groups would remain stable and viable. No special-interest wildlife habitat features would be adversely affected. Cumulatively, an indirect, beneficial, negligible to minor, long-term effect would result from the increased proportion of low-emissions boat engines, which would improve surface water quality.</p> <p>No impairment of wildlife or wildlife habitats.</p>		habitats.
	<p>The humpback chub, bonytail, Colorado pikeminnow, razorback sucker, bald eagle, California condor, Mexican spotted owl, southwestern willow flycatcher, western yellow-billed cuckoo, Navajo sedge, and Ute ladies'-tresses are not likely to be adversely affected. Designated critical habitats for humpback chub, bonytail, Colorado pikeminnow, and razorback sucker are not likely to be adversely affected.</p>	<p>Effects would be similar to Alternative A, except there would be a beneficial, direct, negligible, impact from eliminating personal watercraft access to the upper parts of the tributary rivers. This would occur because of the small reduction of human activities in these locations.</p> <p>No impairment of endangered or threatened species resources or designated critical habitats.</p>	<p>Effects would be similar to Alternative A, except there would be a beneficial, direct, negligible, impact from eliminating personal watercraft access to the upper parts of the tributary rivers. This would occur because of the small reduction of human activities in these locations.</p> <p>No impairment of endangered or threatened species resources or designated critical habitats.</p>
	<p>Negligible, adverse, direct, short- and long-term impacts on special-concern species because the number and management of personal watercraft using Lake Powell would not change.</p>		

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Shoreline vegetation	Cumulative effects are not likely to adversely affect any species or any designated critical habitats. Adverse impacts from all watercraft in areas occupied by these species would be negligible, short-term and restricted to occasional incidences in localized areas.		
	No impairment of endangered or threatened species resources or designated critical habitats.		
	No change would occur from conditions that occurred under the <i>Superintendent's Compendium, 2002</i> . There would be negligible, adverse, direct, short-term effects on shoreline vegetation, including areas supporting submerged aquatic, riparian, wetland, or hanging garden communities.	Effects would be similar to Alternative A. Closing river sections to personal watercraft use and creating wakeless zones would have negligible effects on shoreline vegetation because these areas either are unvegetated or are more heavily affected by water fluctuations of the reservoir and river flows.	Effects would be similar to Alternative A. Eliminating personal watercraft use would have negligible effects on shoreline vegetation because this resource is more heavily affected by water fluctuations of the reservoir and river flows.
	Cumulative effects would be short- and long-term, adverse, direct and indirect, and negligible. All recreational uses would have little incremental impact compared to the effects of reservoir fluctuations on this resource. No impairment of shoreline vegetation resources.	No impairment of shoreline vegetation resources	No impairment of shoreline vegetation resources

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Visitor use and experience	<p>No change would occur from conditions that occurred under the <i>Superintendent's Compendium, 2002</i>. There would be a negligible effect on visitor use and experience because the number of personal watercraft using Lake Powell and their management would not change. The effect on the visitor experience of personal watercraft users would continue to be beneficial, while effects on visitors seeking quiet and solitude would continue to be adverse.</p> <p>Cumulative effects would be negligible and would be either adverse or beneficial, depending on the visitor's goals.</p>	<p>Effects would be similar to Alternative A except as noted here. In most cases, perceptions of individual visitors would determine if each effect was adverse or beneficial.</p> <p>Additional wakeless zones and closed areas would produce negligible to minor, long-term, direct effects.</p> <p>Improvements in visitor education would result in negligible to minor, indirect, long-term, beneficial effects.</p> <p>Other cumulative effects would be negligible.</p>	<p>Visitors who use personal watercraft as a primary vessel or who consider personal watercraft to be of central importance to their visit would experience a direct, major, short- and long-term adverse effect.</p> <p>Users who consider personal watercraft to be of secondary importance would experience short-term, minor to moderate, adverse effects that would decrease to negligible in the long term.</p> <p>Visitors who did not use personal watercraft would generally perceive minor to moderate, short-term benefits. These benefits would decline to negligible in the long term.</p> <p>Other cumulative effects would be negligible.</p>
Visitor conflicts and visitor safety	<p>No change would occur from conditions that occurred under the <i>Superintendent's Compendium, 2002</i>. This would have negligible effects on visitor conflicts and visitor safety.</p> <p>Cumulative impacts also would be negligible.</p>	<p>Long-term, direct, negligible to minor, beneficial reductions in visitor conflicts and improvements in visitor safety would result from the river closures and new wakeless zones.</p> <p>Additional funding for increased enforcement and visitor contact would have a long-term, direct and indirect, minor, beneficial effect on both conflict and safety.</p>	<p>The elimination of personal watercraft could reduce the number of accidents occurring annually by about 14 percent and the number of injury accidents by about 20 percent. This would produce a direct, beneficial, short-term, moderate effect on visitor safety.</p> <p>In the long term, the number of accidents occurring annually would be at least as high as the Alternative A levels,</p>

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Cultural resources	No change from the current negligible to minor contribution that personal watercraft users make to the cumulative, direct and indirect, negligible to moderate, long-term, adverse impacts on archeological, historic, and ethnographic resources in most lake areas. No impairment of cultural resources.	Education enhancements would have an indirect, long-term, minor, beneficial effect on visitor conflict and visitor safety.	although the number of injuries may not increase. This effect would be negligible to minor and adverse.
		Long-term, beneficial, cumulative effects also would result from the increased funding and the education enhancements.	Long-term, direct and indirect, negligible to minor, beneficial reductions in visitor conflicts and improvements in visitor safety would result from eliminating personal watercraft from the river areas.
		Most effects would be similar to Alternative A. Beneficial, direct and indirect, negligible to minor, long-term impacts on archeological, historic, and ethnographic resources would occur in canyon areas where personal watercraft use would be eliminated. Beneficial effects of an improved education program could be negligible to moderate for individual sites, but on a recreation area -wide basis they would be negligible to minor. No impairment of cultural resources.	Visitors would continue to have direct and indirect, negligible to moderate, long-term, adverse impacts on near-lake archeological, historic, and ethnographic resources. A short-term decline in visitation immediately after the ban would have a negligible beneficial effect on cultural resources. Most of this effect would be eliminated as visitors returned with other types of motorcraft. However, the different operating behavior for other motorcraft could have a long-term, beneficial, negligible to minor effect on traditional practices within a mile of the shore. No impairment of cultural resources.

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Socioeconomic environment	Negligible effects because the contributions of personal watercraft use to socioeconomic conditions would not change. Cumulative effects also would be negligible.	Negligible effects because the contributions of personal watercraft use to socioeconomic conditions would not change. Cumulative effects also would be negligible	Adverse, direct and indirect, major, short-term and long-term effects on some segments of the economy of Page. Other communities in the surrounding counties would experience less intense adverse effects. In the short term and long term, cumulative effects would be adverse and moderate.
National recreation area management and operations	No change would occur from conditions that occurred under the <i>Superintendent's Compendium, 2002</i> . Alternative A would have negligible effects on management and operations. Cumulative effects also would be negligible.	Direct, short-term, minor impacts would occur as staff resources were committed to marking newly restricted areas and developing and implementing new educational programs. Increased funding for visitor protection staff and enhanced education materials would lead to long-term, negligible to minor benefits to visitor protection services. Staff requirements for additional monitoring could have long-term, negligible to minor, adverse effects on operations of the resource management division unless additional funding was provided. Cumulatively, the improvements in educational materials, visitor protection staff, and proactive boat patrols would have a beneficial, long-term, negligible	Short-term, direct and indirect, minor, adverse effects could occur from the need to assign additional staff to entry stations to inform visitors trailering personal watercraft of the ban, create educational materials and install signs, monitor compliance, and modify concessioners' contracts. Short-term, direct, beneficial effects would occur because the ban on personal watercraft would eliminate about 15 percent of law enforcement cases. In the long term, visitors returning with other craft would have a direct, negligible to minor, adverse effect.

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		to minor effect for all visitor services.	